Japanese Patent Laid-Open No. 106249/1986, International Patent Publication Nos. 505840/1995, 506780/1995, Japanese Patent Laid-Open Nos. 99478/1996, 90947/1996, 142050/1997, 254351/1997; and method (3) which is a method of forming a pattern on an IR-sensitive layer provided on the surface of a photosensitive resin layer, by exposing it to laser rays, not requiring an original picture film (Japanese Patent Laid-Open No. 52646/1983, Japanese Patent Nos. 2,773,847, 2,773,981, International Patent Publication No. 509254/1998, Japanese Patent Laid-Open Nos. 305007/1996, 305030/1996[.], 171247/1997, 166875/1997, 39512/1998, [39512/1998,] 73917/1998).

Page 3, second paragraph, kindly replace as follows:

The method (1) [is] requires toner or liquid ink for image formation[,]; it is problematic in that fine images could not be formed therein. In the method (2), a porous material or a photosensitive layer is exposed to high-energy laser rays, and therefore [it] this method is problematic in that sharp images are difficult to obtain therein since the relief edges of the porous material and the photosensitive layer melt down. In the method (3), the IR-sensitive layer formed is not transparent, and therefore it is problematic in that the photosensitive resin printing plate processed [therein] by method (3) is difficult to inspect. In this, even though the layer is transparent in some degree, it is still further problematic in that its UV-blocking ability is unsatisfactory.

Page 3, second paragraph bridging page 4, kindly replace as follows:

In view of the above-mentioned problems, the present invention [is to propose] relates to a photosensitive resin printing plate material which is transparent and thereby able to accept

virtual inspection and which can form an image thereon through exposure to light having a wavelength of from 450 to 1500 nm. Concretely, through the step of image formation thereon, the material enables a difference between the UV-transmissive [site] portions and the UV-non-transmissive [site] portions thereof to thereby reproduce even fine relief thereon, not requiring an original picture film.

Page 4, third paragraph, kindly replace as follows:

The essential constitution of the method for producing a photosensitive resin printing plate of the invention is as follows. Specifically, the method comprises at least [a step] the steps of forming an image in a photocoloring layer, [a step of] exposing [a] the photosensitive resin layer to light through the photocoloring layer, and [a step of] developing the photosensitive resin layer.

Page 5, first paragraph, kindly replace as follows:

The support in the invention is made of a metal sheet [of] such as steel, stainless, aluminum, etc., or a plastic sheet of polyester, etc., or a synthetic rubber sheet of styrene-butadiene rubber, etc. Its thickness is determined depending on its use, but may generally fall between 50 and 1000 μm.

Page 5, fifth paragraph bridging pages 6 and 7, kindly replace as follows:

The ethylenic unsaturated monomer is a substance crosslinkable through radical polymerization. It is not specifically [defined] limited, provided that it is crosslinkable through radical polymerization. In general, it includes the following: Compounds having only one

ethylenic unsaturated bond, for example, hydroxyl group-having (meth)acrylates such as 2-hydroxyethyl (meth)acrylate, 2-hydroxypropyl (meth)acrylate, 2-hydroxybutyl (meth)acrylate, 3-chloro-2-hydroxypropyl (meth)acrylate, β-hydroxy-β'-(meth)acryloyloxyethyl phthalate, etc., alkyl (meth)acrylates such as methyl (meth)acrylate, ethyl (meth)acrylate, propyl (meth)acrylate, butyl (meth)acrylate, isoamyl (meth)acrylate, 2-ethylhexyl (meth)acrylate, lauryl (meth)acrylate, stearyl (meth)acrylate, etc., cycloalkyl (meth)acrylates such as cyclohexyl (meth)acrylate, etc., halogenoalkyl (meth)acrylates such as chloroethyl (meth)acrylate, chloropropyl (meth)acrylate, etc., alkoxyalkyl (meth)acrylates such as methoxyethyl (meth)acrylate, ethoxyethyl (meth)acrylate, butoxyethyl (meth)acrylate, etc., phenoxyalkyl (meth)acrylates such as phenoxyethyl acrylate, nonylphenoxyethyl (meth)acrylate, etc., alkoxyalkylene glycol (meth)acrylates such as ethoxydiethylene glycol (meth)acrylate, methoxytriethylene glycol (meth) acrylate, methoxydipropylene glycol (meth) acrylate, etc., (meth) acrylamides such as (meth)acrylamide, diacetone(meth)acrylamide, N,N'-methylenebis(meth)acrylamide, etc., as well as 2,2-dimethylaminoethyl (meth)acrylate, 2,2-diethylaminoethyl (meth)acrylate, N,N-dimethylaminoethyl(meth)acrylamide, N,N-dimethylaminopropyl(meth)acrylamide, 2-hydroxyethyl (meth)acrylate, 3-chloro-2-hydroxypropyl (meth)acrylate, etc.; and compounds having two or more ethylenic unsaturated bonds, for example, polyethylene glycol di(meth)acrylates such as diethylene glycol di(meth)acrylate, etc., polypropylene glycol di(meth)acrylates such as dipropylene glycol di(meth)acrylate, etc., trimethylolpropane tri(meth)acrylate, pentaerythritol tri(meth)acrylate, pentaerythritol tetra(meth)acrylate, glycol tri(meth)acrylate, poly(meth)acrylates obtained through addition reaction of ethylene glycol diglycidyl ether with a compound having an ethylenic unsaturated bond and an active hydrogen of, for example, unsaturated carboxylic acids or unsaturated alcohols, poly(meth)acrylates

obtained through addition reaction of an unsaturated epoxy comopund, e.g., glycidyl (meth)acrylate with a compound having an active hydrogen of, for example, carboxylic acids or amines, poly(meth)acrylamides such as methylenebis(meth)acrylamide, etc., polyvinyl compunds such as divinylbenzene, etc.

Page 7, first paragraph bridging page 8, kindly replace as follows:

The photo-polymerization initiator is not specifically [defined] limited, provided that it has the ability to initiate the polymerization of photo-polymerizable carbon-carbon unsaturated groups. Above all, preferred for use herein are those capable of absorbing light to form a radical through autolysis or hydrogen pull reaction. For example, [they] the initiators include benzoin alkyl ethers, benzophenones, anthraquinones, benzils, acetophenones, diacetyls, etc.

Page 8, first paragraph, kindly replace as follows:

Preferably, the photosensitive resin composition for use in the invention contains a carrier resin in order that it can be solid and can keep the shape of its layer. In general, the type of the carrier resin to be used in the resin composition varies, depending on the type of the ink to be applied to the printing plates that comprise a layer of the resin composition. For the printing plates for aqueous ink, the carrier resin may be ordinary rubber or elastomer, including, for example, butadiene rubber, nitrile rubber, urethane rubber, isoprene rubber, styrene-butadiene rubber, styrene-isoprene rubber, etc. For those for oily ink, it may be hydrophilic resin, including, for example, partially-saponified vinyl acetate, polyamide resin, polyvinyl alcohol, as well as their modified derivatives such as maleic acid-modified derivatives, succinic acid-

modified derivatives, epoxy-modified derivatives, e.g., glycidyl methacrylate-modified derivatives, etc.

Page 9, second paragraph, kindly replace as follows:

The photocoloring layer in the invention is UV-transmissive before colored, and is colored through exposure to light having a wavelength of from 450 to 1500 nm to [be] become substantially UV-non-transmissive.

Page 10, first paragraph, kindly replace as follows:

For determining the optical density, known are a method [of] comprising measuring the intensity of the transmitted light and [a method] measuring the intensity of the incident light. In the invention, the optical density is determined on the basis of the intensity of the transmitted light.

Page 12, third paragraph bridging page 12, kindly replace as follows:

The thermal color former content of the photocoloring layer is not specifically defined, as it varies depending on the optical density of the colored layer. Preferably, however, it falls between 0.1 and 30% by weight, more preferably between 0.5 and 20% by weight of the solid content of the photocoloring layer the optical density of the colored layer. Preferably, however, it falls between 0.1 and 30% by weight, more preferably between 0.5 and 20% by weight of the solid content of the photocoloring layer composition. Containing such a thermal color former in an amount of at least 0.1% by weight, the layer can have the necessary optical density after being processed for color formation therein. Containing it in an amount of at most 30% by weight, the

mechanical strength of the layer does not [lower] decrease. The defined range of the thermal color former content is therefore preferred for these reasons.

Page 13, second paragraph, kindly replace as follows:

Preferably, the developer content of the photocoloring layer composition falls between 0.1 and 50% by weight of the solid content of the composition. The developer, if in the layer in an amount of at least 0.1% by weight, well exhibits its effect to assist the color formation from the thermal color former therein. Containing it in an amount of at most 50% by weight, the mechanical strength of the photocoloring layer does not [lower] decrease. The defined range of the developer content is therefore preferred for these reasons.

Page 15, second paragraph bridging page 16, kindly replace as follows:

Also if desired, a release layer may be provided between the protective film and the photocoloring layer. The release layer makes it possible to peel only the protective film [via it]. Its material is not specifically defined, [so far] as long as it facilitates the release of the protective layer. For example, it includes polyvinyl alcohol, polyvinyl acetate, partially-saponified polyvinyl acetate, cellulose resin, acrylic resin, polyvinylpyrrolidone, nylon resin, urethane resin, ethylene-vinyl acetate copolymer, polybutadiene, polyisoprene, styrene-butadiene rubber, nitrile rubber, polyester resin. However, these are not limitative.

Page 16, first paragraph, kindly replace as follows:

Still if desired, a substance transfer-preventing layer may be provided between the photosensitive resin layer and the photocoloring layer. This is for preventing the photothermal-

transforming substance, the color former and the developer existing in the photocoloring layer and also the substances existing in the photosensitive resin layer from transferring. The material for the layer is not specifically defined, [so far] as long as it has the ability to prevent the substances from transferring into the other layers, especially into the photosensitive resin layer. Some examples of the material are mentioned below.

Page 18, third paragraph bridging page 19, kindly replace as follows:

In case where a substance transfer-preventing layer is provided in the printing plate material, for example, a binder resin to [be] become the layer is dissolved in a solvent, and the resulting solution is applied onto the photosensitive resin layer, using a bar coater, a slit die coater, a gravure coater, a comma coater, a reverse coater or the like, and thereafter a photocoloring layer is formed on the thus-formed, substance transfer-preventing layer according to the method mentioned above. In case where both a protective layer and a substance transfer-preventing layer are provided on and in the printing plate material, for examle, a photocoloring layer composition is first formed on a protective film in the manner mentioned above, then a solution of a binder resin to be the substance transfer-preventing layer is applied onto the photocoloring layer also in the manner mentioned above and optionally exposed to UV rays to thereby form the intended, substance transfer-preventing layer on the photocoloring layer, and finally the thus-coated protective film is hermetically fitted to the photosensitive resin layer formed on a support, using a roller.

Page 20, second paragraph bridging page 21, kindly replace as follows:

In the step of forming an image in the photocoloring layer, the layer is, if coated with a protective film, imagewise exposed to a light from a laser having a wavelength of from 450 to 1500 nm, through the protective film directly as it is or after the protective film has been peeled off, to thereby form an image in the thus-exposed, colored layer. In this step, the laser rays are absorbed by the photothermal-transforming substance in the photocoloring layer, and the part of the layer exposed to the laser rays is heated to have an elevated temperature. With that, the thermal color former in the layer forms a color, and, as a result, the thus-colored layer does not substantially transmit UV rays. Through the process, the thus-exposed photocoloring layer has a colored region and a non-colored region, therefore having therein an image patterned by the combination of the two regions. For the laser exposure, used is any ordinary laser source. For example, usable [for it] are various lasers having an oscillation wavelength range of from 450 nm to 1500 nm, such as Ar ion lasers, Kr ion lasers, He-Ne lasers, He-Cd lasers, ruby lasers, glass lasers, semiconductor lasers, YAG lasers, titanium sapphire lasers, color lasers, nitrogen lasers, metal vapor lasers, etc. Of those, preferred are semiconductor lasers as they are technically much improved these days and are therefore more small-sized and more economical than the others.

Page 21, first paragraph bridging page 22, kindly replace as follows:

In the next step of exposing the photosensitive resin layer through the photocoloring layer, the photosensitive resin printing plate material having been exposed to layer rays in the previous step is further exposed to light generally having a wavelength of from 300 nm to 450 nm, entirely on its surface via the image-formed, colored layer. In this step, since the colored region of the photocoloring layer having been exposed to laser rays in the previous step does not

substantially transmit UV rays, the light of from 300 to 450 nm applied to the printing plate material does not reach the photosensitive resin layer of the material. Since the light applied to the photosensitive resin printing plate material in this step will enter it even through the sides thereof, it is desirable that the sides of the printing plate material are protected with a cover not transmitting the light. For the source of light falling within a wavelength range of from 300 nm to 450 nm, generally employed [is] are any of high-pressure mercury lamps, ultra-high-pressure mercury lamps, metal halide lamps, xenon lamps, carbon arc lamps, chemical lamps, etc. After thus exposed to the light, the part of the photosensitive resin layer forms a substance not dissolving in a developer.

Page 22, first paragraph, kindly replace as follows:

In the step of developing the photosensitive resin layer, the layer having been exposed in the previous step is developed with a developer capable of dissolving and removing the non-exposed part of the layer, for which, for example, [used is] a brush washer or a spray washer is used, and is provided with the developer of the type. Through the process, the exposed region of the photosensitive layer remains on the processed plate, therefore forming a relieve image thereon.